

Case-Marking Strategies

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Two strategies of case marking in natural languages are discussed. These are defined as two violable constraints whose effects are shown to converge in the case of differential object marking but diverge in the case of differential subject marking. The discourse prominence of the case-bearing arguments is shown to be of utmost importance for case-marking and voice alternations. The analysis of the case-marking patterns that are found crosslinguistically is couched in a bidirectional Optimality Theory analysis.

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1 Introduction

Transitive predicates come with a first (higher) and a second (lower) argument in their argument structure. We will refer to these arguments quite loosely as the subject and the object, respectively, but we are aware that the labels *subject* and *object* may not be appropriate in all contexts, depending on how they are actually defined.

In many languages, ergative and accusative case are assigned only or mainly in transitive sentences, while in intransitive sentences they are usually not assigned (Burzio 2000). In that sense, we may call ergative and accusative “dependent” cases, following Marantz (1991), since ergative and accusative crucially *depend on* the presence of another (core) argument (direct object and subject, respectively) in the clause. Unlike nominative case, which is closely connected to the grammatical function of subject and which can combine with different thematic roles, ergative and accusative case are thematically more restricted in that they are mainly used for agents and patients, respectively (a well-known exception is the assignment of accusative case in exceptional case-marking constructions). This cannot be reversed, since agents of intransitive sentences do not receive ergative case in many languages, nor do intransitive subjects that fulfill the role of patient receive accusative usually (although exceptions exist, as will be exemplified below).

In Chomsky 1981 and subsequent work, a notion of abstract case (usually referred to as *Case*) is used in connection with the inviolable Case Filter, which requires every lexically realized DP to bear case. In languages that have little or no case morphology, lexically realized DPs without case apparently violate the Case Filter. However, the postulation of abstract Case would guarantee DPs in structural case positions to be saved from the Case Filter. In this article, we take an Optimality Theory perspective (Prince and Smolensky 2004). Therefore, we assume that

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linguistic constraints such as the Case Filter are violable in nature. Hence, we do not need the notion of abstract Case. Some level of abstraction may still be needed, but in the absence of explicit evidence we simply assume that “what you see is what you get.” Thus, we interpret the absence of morphological case marking as the absence of case (Aissen 1999, 2003). This also means that what is referred to as *nominative* case, or in other contexts *absolute*, can sometimes be viewed as the absence of case. This holds, for example, for the nominative case-marked subject in Hindi in (1), but not for the nominative case-marked subject in Japanese in (2).

- (1) Raam- \emptyset ek bakre-ko bectaa hae.
 Ram-NOM one goat-ACC selling is
 ‘Ram sells the goat.’
- (2) Boku-ga tomodati-ni hana-o ageta.
 1SG-NOM friend-DAT flowers-ACC gave
 ‘I gave flowers to my friend.’

In (1), the name *Ram* is glossed as being in the nominative, even though there is no such thing as a nominative marker in Hindi. That is, the proper noun in (1) is in its unmarked, uninflected form. By contrast, there is a clear case marker, *-ko*, on the direct object in (1). The uninflected word form is called nominative, but in fact, nominative case in Hindi can be viewed as the absence of case. By contrast, the nominative case in Japanese is expressed by a real case marker, and therefore we cannot equate nominative case with the absence of case in Japanese, unless the case marker is dropped, as often happens in colloquial speech (Fry 2001, Lee 2002).

In ergative case systems, the absolute case is often unmarked, and we will similarly assume that in the absence of morphological case marking, absolute case is in fact the absence of case as well. This is illustrated in sentence (3) from Yup’ik.

- (3) Angut-em tangrraa arnaq- \emptyset .
 man-ERG sees woman-ABS
 ‘The man sees the woman.’

A well-studied paradigm in the domain of case is differential object marking: in many languages, objects higher in animacy or definiteness are case-marked, while lower ones are not (Bossong 1985, Aissen 2003). In Turkish, for example, specific objects are marked with accusative case, while nonspecific objects remain caseless (Enç 1991).

- (4) Ali bir kitab-ı aldı.
 Ali one book-ACC bought
 ‘Ali bought a certain book.’
- (5) Ali bir kitap aldı.
 Ali one book bought
 ‘Ali bought some book or other.’

An explanation of differential object marking in terms of markedness is proposed by Aissen (2003). In a canonical transitive construction, the object is lower than the subject in animacy/

definiteness. Thus, when the object is animate/definite, it is *marked* (for an object), which means it should be (case-)marked as well. If differential subject marking mirrored differential object marking, then we would also expect inanimate and indefinite subjects (which are more ‘objectlike’ and hence *marked* for a subject) to be case-marked, rather than typical (animate, definite) subjects. This prediction is actually borne out in some languages, such as Qiang (a Tibetan language), where the subject in a transitive clause takes agentive case only when it is inanimate (Lapolla 2003).

- (6) Moʁu-wu qa datuəz(-ʂa).
 wind-AGT 1SG knocked.down
 ‘The wind knocked me down.’

In fact, though, such examples are rare. More often, differential subject marking manifests itself in a split between nouns and pronouns or as a function of clausal features such as tense/aspect/mood. Also, as various contributions to de Hoop and de Swart 2008 show, sometimes the pattern seems to be the opposite of the one in Qiang, such that case marking is required on the typical (agentive, volitional) subjects rather than on the atypical ones. In general, while differential object marking is rather robust in that it is always the more prominent (animate, definite) object that is case-marked, there is much more variation in the patterns of differential subject marking found crosslinguistically (see de Hoop and de Swart 2008, Malchukov 2008). In this article, we will account for this striking difference concerning the two types of case alternation, differential object and subject marking.

Another generalization that we will account for, basically following Malchukov (2006), is that passives are found mostly in nominative-accusative languages, while antipassives are found mostly in ergative languages. We will argue that this is linked to another crosslinguistic observation, namely, that differential object marking is found mostly in nominative-accusative languages while differential subject marking is found mostly in ergative languages. We will show that these widely attested patterns can be explained in terms of an interplay among different types of universal constraints in the domain of case marking.

2 Two Basic Functions of Case Marking

The main hypothesis we wish to explore in this article is that, following functional-typological insights, two basic functions of case marking can be distinguished, the *identifying* function and the *distinguishing* one (Mallinson and Blake 1981, Kibrik 1985, Comrie 1989, Song 2001). Roughly, while the identifying function encodes internal properties of the arguments, the distinguishing function crucially depends on the relation between the arguments.

The identifying strategy makes use of case morphology to encode specific semantic/pragmatic information about the nominal argument in question. We say that case morphology is used to identify semantic or pragmatic properties. Lexical (inherent, oblique) as well as semantic cases are obvious examples of the identifying strategy (Butt and King 2003, 2004), but the identifying function of case is not restricted to lexical or semantic cases. In fact, structural or grammatical

cases identify some semantic/thematic properties to a certain degree as well. For example, structural accusative case in direct object position can be argued to identify patienthood. In some languages, dative is a structural case as well, yet it is clearly associated with thematic roles such as goal and experiencer. Ergative case is associated with “true” agents in many languages. In Manipuri, for example, the ergative case on the agent in (7) marks high agentivity (the agent is in control, volitional), while a decrease in agentivity is signaled by the lack of ergative case in (8) (Bhat and Ningomba 1997).

- (7) əy-nə tebəl-də theŋgi.
 I-ERG table-LOC touched
 ‘I touched the table (volitionally).’

- (8) əy tebəl-də theŋgi.
 I table-LOC touched
 ‘I touched the table (involuntarily).’

In Manipuri, all and only true agents receive ergative case. This holds for both transitive and intransitive agents. Thus, one can say that ergative case in Manipuri identifies agentivity. We introduce a general constraint stating that ergative case identifies *strong subjects* (which we will designate as *A*). The notion *strength* that is used in (9) will be elaborated on in section 3.

- (9) *IDENTIFY (A/ERG)*
 Ergative case identifies strong subjects ($A \leftrightarrow \text{ERG}$).

A more general constraint can be formulated as follows:

- (10) *IDENTIFY*
 Encode internal argument properties.

IDENTIFY must be conceived of as a family of constraints and not a single constraint. Clearly, the constraint in (9) can be taken as one instantiation of this constraint.

The distinguishing strategy is a more specific strategy that is used for distinguishing between the two core arguments of a transitive clause, that is, the subject and the object. The intuition behind the distinguishing function is quite clear. When a two-place predicate $R(x,y)$ is used to describe an event involving two participants, usually an agent and a patient, it is of utmost importance to know which noun phrase corresponds to the first argument x (the agent) and which to the second argument y (the patient). For this purpose, case can be used to mark one of the arguments. If one argument is case-marked, this already suffices for the purpose of disambiguation. Thus, from the distinguishing perspective, there is no need to case-mark both arguments. Neither would it be necessary to case-mark the one and only argument of a one-place (intransitive) predicate. Indeed, it has been argued that in many nominative-accusative case systems only the y is case-marked (with accusative case) while the x remains morphologically unmarked. This view accords with our assumption presented above. When nominative case is the unmarked (uninflected) case form, we interpret it as the absence of case. Similarly, in pure ergative-absolutive systems only the x is case-marked, while the y remains morphologically unmarked (absolutive).

The single argument of an intransitive verb is unmarked as well, and although it is labeled absolutive or nominative, it can often be seen as lacking case as well.

While Manipuri is an example of a radically identifying language, there are also languages that can be characterized as radically distinguishing. In Awtuw, the object is obligatorily marked with accusative case if the object is as high as or higher than the subject in the animacy hierarchy (Feldman 1986).

- (11) Tey tale-re yaw dæli.
 3FEM.SG woman-ACC pig bit
 'The pig bit the woman.'

- (12) Tey tale yaw dæli.
 3FEM.SG woman pig bit
 'The woman bit the pig.'

In Fore, a Papuan language, it is the subject that is marked with ergative case if the object is higher in the animacy hierarchy than the subject (Scott 1978).

- (13) Yagaa-wama wá aegúye.
 pig-ERG man hit
 'The pig hits the man.'

- (14) Yagaa wá aegúye.
 pig man hit
 'The man hits (or kills) the pig.'

In (14), the man is higher in the animacy hierarchy than the pig, and that is why 'man' is interpreted as the subject, even though the canonical SOV word order is overruled. If two arguments are equal in the animacy hierarchy in Fore, word order becomes decisive and the first argument is interpreted as the subject. But if the speaker wants to express that the pig hit the man, then the nonhuman subject must be explicitly marked as the subject (as in (13)). Note, by the way, that ergative marking becomes dispensable if the arguments are disambiguated via verbal agreement. According to Foley (1986:173), this means that verbal (agreement) morphology takes priority over nominal (case) morphology as a means of disambiguation. Crosslinguistically, a merely distinguishing function of case is rare. This could be explained by the fact that there are alternative strategies for disambiguating the two arguments of a transitive predicate, such as the use of subject agreement, word order restrictions, context, and/or intonation (Keenan 1978, Bouchard 2001, de Hoop and Lamers 2006). For example, as noted above, when in Fore the two arguments are equal in animacy, word order alone determines what is the subject and what is the object: the first noun phrase is then interpreted as the subject.

The distinguishing function of case can be characterized as a global constraint as in Fore (i.e., the relative animacy of subject and object is measured) or as a local one as in classical cases of markedness effects in differential object marking, where for instance the animacy or definiteness of the object is evaluated independently of the animacy or definiteness of the subject (see de

Swart 2006 for more discussion and more examples of global distinguishability). To put the general motivation behind this type of case marking, whether locally or globally applied, in terms of a constraint (de Swart 2006, de Hoop and Lamers 2006):

(15) *DISTINGUISHABILITY*

The two arguments of a transitive clause should be distinguishable.

Case marking is a way to distinguish between the subject and the object and hence to satisfy *DISTINGUISHABILITY*. If the subject and the object are otherwise distinguishable (as when in Fore the subject outranks the object in animacy), then case marking is not necessary to satisfy this constraint. However, if the object is more “subjectlike” (absolutely or relatively)—that is, if it equals the (general or actual) subject in animacy/definiteness—the subject and the object can no longer be distinguished on the basis of these animacy/definiteness properties. In order to satisfy *DISTINGUISHABILITY* and to avoid *potential* ambiguity, case marking can apply.

Obviously, the identifying and distinguishing functions are not entirely separate, but overlap considerably. In fact, if case is systematically used to identify the subject or the object in a transitive clause, then of course differentiation comes “for free.” Therefore, case systems that are completely based on the function of identification must be richer in case morphology than the mainly distinguishing ones. As we will show, however, both functions are needed to account for the various case-marking patterns found across languages.

3 A Bidirectional Optimality Theory Approach to Case Marking

Crosslinguistically, the strength of nominal constituents seems to influence case marking (e.g., de Hoop 1996). As pointed out by de Hoop and Narasimhan (2005), arguments that are definite and animate can be seen as stronger, as more prominent in the discourse, or as typical full-fledged arguments, independent of whether they are the subject or the object of a transitive clause. This is also clear in the account of Legendre, Raymond, and Smolensky (1993), who emphasize the role of discourse prominence for case marking and use Optimality Theory (OT) constraints such as “High-prominence arguments receive subject case marking” and “Low-prominence arguments do not receive subject or object case marking.” Thematic properties contributing to agentivity or patienthood of the core arguments also seem to contribute to an argument’s strength (Dowty 1991). Importantly, different perspectives on the strength of DPs point in the same direction: animate and specific DPs are usually highly prominent in the discourse, and they are also often realized as real syntactic arguments (hence qualify as better agents and patients). We will refer to these DPs as *strong* DPs in the remainder of this article, basically following de Hoop and Narasimhan (2005).

Note by the way that this notion of strength for arguments differs only slightly from the notion of strength used in de Hoop 1996 to account for the role of DP semantics in (abstract) differential case marking. De Hoop focuses on the difference between quantificational and predicative types of noun phrases, and this difference can also be captured under the notion of strength as we use it here. What counts as a strong DP—that is, the cut-off point between strong and weak—may vary from language to language. Thus, we can define the identifying function of

case as identifying/markings the strong arguments, both subjects and objects. Thus, we predict that strong DPs are likely to be overtly case-marked (de Hoop 1996). However, this does not always hold. In fact, sometimes the weak rather than the strong arguments receive overt case marking (see Aissen 1999). We claim that crosslinguistic variation in case-marking patterns can be analyzed in terms of differences in the relative strengths of the two basic case-marking constraints, IDENTIFY and DISTINGUISHABILITY, in relation to ECONOMY. In this section, we will present our bidirectional OT analysis of the resulting case patterns.

Consider the pattern in Manipuri, repeated here for convenience. The ergative case on the subject marks high agentivity, while a decrease in agentivity of the subject is signaled by the lack of ergative case.

- (16) əy-nə tebəl-də theŋgi.
 I-ERG table-LOC touched
 'I touched the table (volitionally).'

- (17) əy tebəl-də theŋgi.
 I table-LOC touched
 'I touched the table (involuntarily).'

(16) and (17) constitute a minimal pair of form-meaning pairs, where one form (ergative) corresponds to one meaning (the strong subject, which we will designate as *A*) and the other form (without case) to the other meaning (the weak subject, *a*).

A pattern like this with two related forms and two related meanings and a one-to-one mapping between the forms and the meanings suggests an analysis in terms of bidirectional OT (Blutner 2000). The markedness principle that is a general principle in natural language states that an unmarked form goes with an unmarked meaning, and a marked form with a marked meaning (Horn 1984), and it is known to follow from bidirectional optimization (from form to meaning and from meaning to form). Let us briefly illustrate the main characteristics of Blutner's bidirectional OT (note that there are also other, asymmetrical, bidirectional OT models, such as the ones proposed by Wilson (2001) and Zeevat (2000)). Assume that we have two forms f_1 and f_2 and two meanings m_1 and m_2 . We stipulate that the form f_1 is less marked than the form f_2 , which means that for a given meaning m , form f_1 will be the optimal form. Furthermore, interpretation m_1 is less marked than interpretation m_2 , which means that for a given form f , meaning m_1 will be the optimal meaning (Blutner 2000, Dekker and van Rooij 2000).

In Blutner's (2000) framework, a form-meaning pair $\langle f, m \rangle$ is called *superoptimal* if and only if there is no other superoptimal pair $\langle f', m \rangle$ such that $\langle f', m \rangle$ is more harmonic than $\langle f, m \rangle$ and there is no other superoptimal pair $\langle f, m' \rangle$ such that $\langle f, m' \rangle$ is more harmonic than $\langle f, m \rangle$. The reader may verify that according to this definition, and given the two forms f_1 and f_2 and the two meanings m_1 and m_2 , there are two superoptimal pairs, namely, $\langle f_1, m_1 \rangle$ and $\langle f_2, m_2 \rangle$. Indeed, although f_2 is not an optimal form itself and m_2 is not an optimal meaning, the pair $\langle f_2, m_2 \rangle$ is superoptimal, because there is no superoptimal pair that blocks it. A pair $\langle f, m \rangle$ is *blocked* if there is a superoptimal pair $\langle f', m \rangle$ or $\langle f, m' \rangle$ that is more harmonic than $\langle f, m \rangle$. So, the two candidates $\langle f_1, m_2 \rangle$ and $\langle f_2, m_1 \rangle$ are not superoptimal because they are each blocked by

the superoptimal pair $\langle f_1, m_1 \rangle$. Now, because $\langle f_1, m_2 \rangle$ and $\langle f_2, m_1 \rangle$ are blocked, they are not superoptimal. As a consequence, these two pairs cannot block $\langle f_2, m_2 \rangle$, because a pair can only be blocked by a *superoptimal* pair that is more harmonic either in form or in meaning. Although $\langle f_1, m_2 \rangle$ and $\langle f_2, m_1 \rangle$ are more harmonic than $\langle f_2, m_2 \rangle$ in form or meaning, respectively, they are not superoptimal, so they cannot block the pair $\langle f_2, m_2 \rangle$. Thus, Blutner's bidirectional OT provides two superoptimal form-meaning pairs, one linking the unmarked form to the unmarked meaning, and one linking the marked form to the marked meaning. This is in accordance with the markedness principle.

Let us now turn to our bidirectional analysis of the Manipuri case-marking pattern. In Manipuri, subject case marking is completely determined by IDENTIFY, so all and only strong subjects receive ergative case (Bhat and Ningomba 1997). We assume that a general constraint called ECONOMY penalizes morphological case marking. Thus, two superoptimal form-meaning pairs are derived for the subject as illustrated in tableau (18).

(18) Asymmetrical differential subject case marking in Manipuri

Subject	IDENTIFY (A/ERG)	ECONOMY
Ø [ERG, A]		*
[ERG, a]	*	*
[Ø, A]	*	
Ø [Ø, a]		

This bidirectional OT tableau can be read as follows. The fourth candidate form-meaning pair is superoptimal because it does not violate any of the constraints. This pair combines a weak subject meaning with a null form. The second pair has the same meaning as the fourth, but its form (ergative case) is less economical (suboptimal); the third pair has the same form as the fourth, but it is linked to a less harmonic meaning (as it induces a violation of IDENTIFY). Therefore, the second and third form-meaning pairs are blocked by the fourth pair. The first pair cannot be blocked by the superoptimal pair, since it differs in both form *and* meaning from that one. Hence, it is not blocked by a superoptimal pair at all (as the other two candidates are not superoptimal themselves). That is why the first candidate emerges as superoptimal as well. As a result, there are two winning form-meaning pairs, one that assigns no case to a weak subject, and another that assigns ergative case to a strong subject. In de Hoop and Malchukov 2007, we argue that in particular for this type of (fluid) case alternation, a bidirectional OT approach can straightforwardly account for the data while a unidirectional OT approach cannot.

Above, we presented Fore as a language where DISTINGUISHABILITY rather than IDENTIFY governs differential subject marking. The relevant pattern is repeated here.

(19) Yagaa-wama wá aegúye.

pig-ERG man hit
'The pig hits the man.'

- (20) Yagaa wá aegúye.
 pig man hit
 ‘The man hits (or kills) the pig.’

In Fore, the subject receives ergative case marking when it is (relatively) weak, in the sense that it is less prominent than the object (i.e., the object outranks the subject in the animacy hierarchy). To distinguish this weak subject from the object, the weak subject is case-marked. Hence, when the subject is relatively strong (as animate as or more animate than the object), it remains without case. This is illustrated in the bidirectional OT tableau (21).

- (21) Asymmetrical differential subject case marking in Fore

Subject	DISTINGUISHABILITY	ECONOMY
[ERG, A]		*
ɛ [ERG, a]		*
ɛ [∅, A]		
[∅, a]	*	

The third candidate form-meaning pair is clearly a superoptimal pair, as it does not violate any of the constraints. In this candidate pair, the subject outranks the object in animacy (hence is marked A for “strong subject”), which means that DISTINGUISHABILITY is satisfied, and there is no case marking, which means that ECONOMY is satisfied as well. Hence, the third pair blocks both pairs that differ from the superoptimal pair in either form (the first candidate) or meaning (the fourth candidate). This leaves the second candidate, which differs from the third one in both form and meaning, as the second superoptimal form-meaning pair.

We have now illustrated how our proposal accounts for differential case-marking patterns on the basis of IDENTIFY and DISTINGUISHABILITY, both in relation to a general principle of ECONOMY. Strikingly, whereas IDENTIFY in relation to ECONOMY results in ergative case marking of the *strong* subject, DISTINGUISHABILITY in relation to ECONOMY results in ergative case marking of the *weak* subject. This explains the variation in differential subject-marking patterns that is found crosslinguistically (de Hoop and de Swart 2008, Malchukov 2008).

Another phenomenon worth discussing here is *symmetrical* differential case marking, where two case forms alternate rather than one case-marked form alternating with a caseless form. Relevant examples from Lezgian are given in (22) and (23) (Haspelmath 1993).

- (22) Ajal-di get’e xana.
 child-ERG pot broke
 ‘The child broke the pot.’
- (23) Zamiira.di-waj get’e xana.
 Zamira-OBL pot broke
 ‘Zamira broke the pot (accidentally/involuntarily).’

These examples instantiate differential subject marking that reflects features of the subject (in particular, volitionality vs. nonvolitionality). Both the weak subject and the strong subject are case-marked, so neither remains caseless. So far, we have discussed varieties of *asymmetrical* differential case marking, where one form is case-marked and the other is the unmarked or null form (shown by the absence of case marking), which can be analyzed as the result of the interaction between DISTINGUISHABILITY and ECONOMY (Aissen 1999, 2003). However, in cases of symmetrical differential case marking of the type observed in Lezgian, DISTINGUISHABILITY would be vacuously satisfied as the appearance of both ergative and oblique case on the subject suffices to distinguish between the subject and the object. Hence, whenever symmetrical case alternations occur (i.e., two types of morphological case) instead of asymmetrical ones (overt case marking vs. no case marking), we suggest an analysis in terms of IDENTIFY. This pattern can be accounted for straightforwardly in a bidirectional OT approach as well. In Lezgian, ergative case switches to oblique if the subject is weak (in this case, nonvolitional), producing the pattern shown in (24).

(24) Symmetrical differential subject case marking in Lezgian

Subject	IDENTIFY (A/ERG)	ECONOMY
♂ [ERG, A]		*
[ERG, a]	*	*
[OBL, A]	*	*
♂ [OBL, a]		*

Note that ECONOMY is violated by all candidate pairs in Lezgian. This can be accounted for if we assume a general constraint such as the CASE FILTER, which requires case marking on all DPs and which apparently outranks ECONOMY here.

Things are different for asymmetrical differential case marking, which is often triggered by DISTINGUISHABILITY. This is illustrated by the well-known pattern of differential case marking where different types of nominal constituents select different cases; for example, nouns are marked differently from pronouns in Australian split-ergative languages. In many split-ergative languages, a (first/second person) pronoun does not receive ergative case marking when it is the subject of a transitive verb, while a noun does (Silverstein 1976, Aissen 1999). By contrast, (first/second person) pronominal direct objects receive accusative case marking, while nominal objects do not. A well-known example of this pattern is Dyirbal (Dixon 1979).

(25) Case marking in Dyirbal

	1st, 2nd person pronoun	3rd person pronoun	Noun
Transitive subject	∅	-ngu	-ngu
Transitive object	-na	∅	∅

This type of differential case marking is due to DISTINGUISHABILITY, interacting with ECONOMY. It is illustrated in tableau (26) for differential subject marking in Dyirbal.

(26) Asymmetrical differential subject case marking in Dyirbal

Subject	DISTINGUISHABILITY	ECONOMY
[ERG, A]		*
♫ [ERG, a]		*
♫ [∅, A]		
[∅, a]	*	

In Dyirbal, first and second person pronouns count as strong subjects (As), and they do not need case marking to distinguish them from objects. This is in accordance with the fact that the same categories (i.e., first and second person pronouns) count as strong objects (Ps) and therefore receive accusative case marking when they function as object of a transitive clause. The same correlation between case-marking strategies and differential case-marking patterns (symmetrical vs. asymmetrical) observed above for differential subject marking can be observed for differential object marking too. That is, in a split-ergative language like Dyirbal, differential case marking of the object is asymmetrical and clearly due to DISTINGUISHABILITY.

On the other hand, symmetrical differential object marking must be due to IDENTIFY. Differential object marking in Finnish illustrates this analysis. In Finnish, weak objects receive partitive case and strong objects, accusative case. A strong object is obtained when the predicate is bounded (i.e., nonhomogeneous) (Kiparsky 1998).

- (27) Ammuin karhu-a.
 shot.1SG bear-PART
 'I shot at a/the bear.'

- (28) Ammuin karhu-t.
 shot.1SG bear-ACC
 'I shot a/the bear.'

In Finnish, then, IDENTIFY does the job all by itself. Note that ECONOMY is vacuously violated here, which means that both candidate forms (and therefore, all four form-meaning pairs) violate this constraint. And again, DISTINGUISHABILITY would be vacuously satisfied, as either accusative or partitive case would suffice to distinguish the object from the subject.

(29) Symmetrical differential object case marking in Finnish

Object	IDENTIFY (P/ACC)	ECONOMY
♫ [ACC, P]		*
[ACC, p]	*	*
[PART, P]	*	*
♫ [PART, p]		*

So, while asymmetrical differential case marking can sometimes be explained by *DISTINGUISHABILITY*, symmetrical differential case marking is necessarily due to *IDENTIFY*. This is consistent with Woolford's (2008) observation that differential case-marking patterns are heterogeneous and that some are determined by an alternation in argument structure, although Woolford does not relate the semantic types of differential case marking to the syntactic patterns in the way suggested here. We believe that the two different strategies of case marking straightforwardly explain the attested correlations.

Unlike in differential subject marking, in asymmetrical differential object marking the effects of *IDENTIFY* and *DISTINGUISHABILITY* converge, because they both require the case marking of strong (rather than weak) objects. This explains the crosslinguistic consistency of differential object-marking patterns as compared with differential subject-marking patterns. (This has also been pointed out by de Hoop and Narasimhan (2005).) To illustrate this, we will briefly discuss differential object marking in Hindi. The object case alternation in Hindi correlates with animacy and/or specificity of the object (accusative case-marks an animate or specific object), while nominative case is the unmarked (morphologically zero) case that functions as the elsewhere case for the object.

- (30) Wo ek laD.kaa / ek laD.ke-ko dekhtaa hae.
 he one boy / one boy-ACC seeing is
 'He sees a boy / the boy.'

In differential object marking in Hindi, there are again two forms (one without case and one with accusative case) and two meanings (a weak object and a strong object), and this leads to two superoptimal form-meaning pairs. We can say that the accusative case marking in (30) is the result of the constraint *IDENTIFY (P/ACC)* that marks strong (animate, specific) objects with accusative case, as illustrated in tableau (31).

- (31) Asymmetrical differential object case marking in Hindi

Object	<i>IDENTIFY (P/ACC)</i>	<i>ECONOMY</i>
ॐ [ACC, P]		*
[ACC, p]	*	*
[∅, P]	*	
ॐ [∅, p]		

However, as noted above, we cannot make a principled distinction between the identifying and the distinguishing function of case here, since both functions predict the *strong* objects to be case-marked. Indeed, *DISTINGUISHABILITY* would mark the strong (animate, specific) object with accusative case in order to distinguish it from the subject, simply because an animate, specific object can be argued to be "subjectlike." Hence, *DISTINGUISHABILITY* gives rise to exactly the same two superoptimal pairs as *IDENTIFY (P/ACC)*, as tableau (32) shows.

(32) Asymmetrical differential object case marking in Hindi

Object	DISTINGUISHABILITY	ECONOMY
ॐ [ACC, P]		*
[ACC, p]		*
[∅, P]	*	
ॐ [∅, p]		

Although we have shown that the two constraints lead to the same type of differential object marking (namely, marking the strong objects), one might wonder whether it is still possible to distinguish between differential object marking triggered by IDENTIFY and differential object marking triggered by DISTINGUISHABILITY. That is, does the convergence of the two constraints' effects mask two different types of differential object marking after all? We think that indeed it does and that some patterns are in fact better explained by IDENTIFY and others by DISTINGUISHABILITY. For example, animacy effects in differential object marking are often due to DISTINGUISHABILITY, as is obvious in languages such as Awtuw (examples from Feldman 1986).

(33) Tey tale-re yaw dæli.

3FEM.SG woman-ACC pig bit

'The pig bit the woman.'

(34) Tey tale yaw dæli.

3FEM.SG woman pig bit

'The woman bit the pig.'

Awtuw is a Papuan language, like Fore, and as in Fore differential case marking is driven by global distinguishability. The difference between the two Papuan languages is that Fore has differential subject marking, while Awtuw has differential object marking. In Awtuw, the object is marked with accusative case if it outranks the subject in animacy. Note that we are dealing with global (relative) differential object marking here, in the sense that the object marking crucially depends on the properties of both the subject and the object—that is, the relation between the two. Such a pattern must be due to DISTINGUISHABILITY. In tableau (35), the strong object marker *P* stands for an object that outranks the subject in animacy.

(35) Asymmetrical differential object case marking in Awtuw

Object	DISTINGUISHABILITY	ECONOMY
ॐ [ACC, P]		*
[ACC, p]		*
[∅, P]	*	
ॐ [∅, p]		

However, DISTINGUISHABILITY is not the best explanation for the differential object marking pattern in Central Pomo, where patientive case is locally (i.e., independent of the case of the subject) assigned to human objects only (Mithun 1991).

(36) M'u-tu ʔa-hk'úm.

he.PAT I.killed

'I killed him.'

(37) Mu-l ʔa-hk'úm.

he I.killed

'I killed it (the bee).'

This usual differential object-marking pattern could be explained by DISTINGUISHABILITY. Strikingly, though, the pattern carries over to differential subject marking.

(38) Q'alá-w m'u-tu.

died he.PAT

'He died.'

In (38), the subject of the intransitive clause is a patient, and since it is human, it receives the same case marking as the object of the transitive clause in (36). This can only be explained by IDENTIFY, as it is a strong P-argument that gets marked, but in an intransitive clause, thus in the absence of another argument (Malchukov 2008). Hence, the case marking in (38) cannot be explained by DISTINGUISHABILITY. Therefore, the differential object-marking pattern in this language is also better explained by IDENTIFY, as illustrated in tableau (39).

(39) Asymmetrical differential object case marking in Central Pomo

Object	IDENTIFY (P/PAT)	ECONOMY
♫ [PAT, P]		*
[PAT, p]	*	*
[∅, P]	*	
♫ [∅, p]		

To sum up, taking into account two functions of case marking, DISTINGUISHABILITY and IDENTIFY, we can explain the asymmetries between differential subject marking and differential object marking. While the two constraints give rise to the same type of differential object marking (marking the strong object), they diverge in the case of differential subject marking (DISTINGUISHABILITY predicts that the weak subject will be case-marked in order to distinguish it from the object, while IDENTIFY predicts that the strong subject will be case-marked). But even in the case of differential object marking, we can find examples that seem to be triggered by the need to satisfy DISTINGUISHABILITY, as illustrated by (33) and (34) from Awtuw, as well as examples where the key constraint seems to be IDENTIFY, as shown by the paradigm in (36)–(38) from Central Pomo.

Our approach can also account for violations of Silverstein's hierarchy constraints on case patterns, such as the use of ergative case in Aranda (Silverstein 1976, discussed in Woolford 2008). In Aranda, both first person pronouns (strongest in the person hierarchy) and inanimate nouns (weakest in the animacy hierarchy) are surprisingly assigned ergative case.

(40) *ERG: 1st > 2nd > 3rd > human > animate > inanimate*

This pattern results from the fact that both IDENTIFY and DISTINGUISHABILITY interact with the animacy hierarchy (Silverstein 1976, Aissen 2003), but interact in the opposite way. Recall that DISTINGUISHABILITY compels differential case marking on the weakest (inanimate) subjects. Hence, the constraint penalizing inanimate subjects unmarked for ergative case is the strongest, and the marking of inanimate subjects in Aranda results from the fact that this constraint is stronger than ECONOMY considerations, which penalize morphological case, while other segments of the animacy hierarchy are dominated by the ECONOMY constraints. On the other hand, IDENTIFY penalizes case marking of subjects lower in the animacy hierarchy: only the strongest subjects (i.e., the first person pronouns) are identified/marked with ergative case. Hence, this constraint outranks the ECONOMY constraint as well. Thus, the effects of both IDENTIFY and DISTINGUISHABILITY are visible in Aranda: the ergative case on the first person pronoun (strong subject) is due to IDENTIFY, while the ergative case on the inanimate noun (weak subject) satisfies DISTINGUISHABILITY. The other types of subjects hold an intermediate position between weak and strong, and we will designate them as *A-a* (in this representation, we abstract away from the fact that this is not a unitary type, as it relates to different positions in the animacy hierarchy).

(41) Asymmetrical differential subject case marking in Aranda

Subject	DISTINGUISHABILITY	IDENTIFY (A/ERG)	ECONOMY
ǃ [ERG, A]			*
[ERG, A-a]		*	*
ǃ [ERG, a]		*	*
[∅, A]		*	
ǃ [∅, A-a]			
[∅, a]	*		

The fifth candidate form-meaning pair in tableau (41), which combines no case with an intermediate subject (not strong, not weak), emerges as superoptimal. This candidate blocks the ones that differ from it only in form or in meaning. However, the first and third candidate pairs differ both in form *and* in meaning from the superoptimal pair. Hence, they emerge as superoptimal as well. One might think that the third candidate pair would be blocked by the first one, since these two differ only in meaning, not in form. However, this is not the case. First, there is no other case form available; hence, there is no other form for the other meaning (the weak, inanimate subject) and we may expect ambiguity. More importantly, though, a difference in form is not really

necessary here, because the first person pronoun (a strong subject) can never be inanimate (a weak subject) at the same time. That is, ergative case is not ambiguous here between marking a strong subject and marking a weak subject.

4 The Relation between Case and Voice Alternations

So far, we have worked with a very general economy constraint (simply called *ECONOMY* in the OT tableaux) that interacted with our two basic case-marking constraints, *DISTINGUISHABILITY* and *IDENTIFY*. To account for a few more crosslinguistic generalizations in the domain of case marking, we need to refine this constraint. That is, we will replace *ECONOMY* with Malchukov's (2006) constraint *PAIP*, whose name originally abbreviated *Primary Actant Immunity Principle*. The *primary actant* (or *primary term* in Palmer's (1994) terminology) refers to the argument of a transitive clause that is encoded like the intransitive subject. In our formulation, *PAIP* penalizes case-marking an (otherwise) unmarked argument. Thus, in general, *PAIP* penalizes morphological case marking of the absolutive argument in ergative languages and of the nominative argument in nominative-accusative languages. Of course, this can be seen as a reformulation of a constraint stating that one argument should always bear the unmarked case—or, to put it differently, that the unmarked case (either nominative or absolutive) is obligatorily present in every sentence of a language. This constraint thus resembles Tsunoda's (1981) Unmarked Case Constraint and Bobaljik's (1993) Obligatory Case Parameter.

(42) *PAIP*

Avoid (case) marking of the unmarked argument.

PAIP thus penalizes ‘marking the unmarked.’ As Malchukov (2006) has argued, the potential conflict between *IDENTIFY* and *PAIP* can explain the striking fact that differential object marking is normally found in nominative-accusative languages, while differential subject marking is usually found in ergative languages (Bossong 1985, Drossard 1991).

In nominative-accusative languages, where the subject of a transitive sentence is the unmarked argument, differential object marking does not violate *PAIP*, which is satisfied by the nominative subject. But in ergative languages, where the object of a transitive verb is the unmarked argument, object marking would induce a violation of *PAIP*. In those languages, a weak object often leads to the use of an antipassive construction, while a strong object remains in the unmarked (absolutive) case. For example, consider the alternation between (43) and (44) in Greenlandic Eskimo (Bittner 1988).

(43) Jaaku-p arnaq tuqut-p-aa.

Jacob-ERG woman kill-IND-3SG.ERG/3SG.NOM

‘Jacob killed the woman.’

(44) Jaaku arna-mik tuqut-si-v-uq.

Jacob woman-INSTR kill-AP-IND-3SG.NOM

‘Jacob killed a woman.’

Note that in (44) the object or the *y* argument is nonspecific, whereas it is specific in (43). Yet only (43) is a true transitive construction with ergative case on the subject and both subject and object agreement on the verb; (44) is in fact an intransitive—more specifically, antipassive—construction, and its only true argument (the subject) is therefore unmarked for case, whereas the *y* argument is marked with oblique (instrumental) case.

Note that marking of the weak objects in an antipassive construction might appear problematic since the constraints *DISTINGUISHABILITY* and *IDENTIFY* both predict preferential marking of strong objects. The contradiction is only apparent, though. As noted above, in ergative languages the constraint *IDENTIFY* (P/ACC) cannot be satisfied because these languages lack accusative case. Hence, the strong object in a canonical transitive construction will remain unmarked. However, a weaker version of *IDENTIFY*, requiring differential marking of weak and strong objects, can be satisfied indirectly, through marking the weak object with an oblique case—that is, differently from strong objects. In this article, we have dealt primarily with core cases and have used the version of *IDENTIFY* pertaining to strong objects. Explaining why the weak object receives instrumental case here is beyond the scope of the article, but we assume that assignment of oblique cases is also governed by faithfulness constraints such as *IDENTIFY*. Recall that in section 2 we mentioned that lexical (inherent, oblique) as well as semantic cases are obvious examples of the identifying strategy. However, for our current line of argument it is only important that *IDENTIFY*-P is satisfied here, even though indirectly (in the negative way). Below, we will provide more examples showing how a weaker version of *IDENTIFY* interacting with *ECONOMY* can explain some unusual patterns of differential case marking.

In other words, weak objects may cause the shift to antipassive in ergative languages. This can be explained as the avoidance of a *PAIP* violation. Marking the alternation on the (absolute) object would violate *PAIP*, which states that the unmarked argument should not be tampered with. Using the antipassive construction causes the subject to become the unmarked argument (in the absolute case), which means that *PAIP* as a requirement that the clause must have an unmarked argument is fulfilled.

Evidence for *PAIP* is found in nominative-accusative languages as well. In ergative languages, a change in the strength of the subject can affect the form of the subject exclusively (differential subject marking), since this does not violate *PAIP*. In nominative-accusative languages, on the other hand, a weak agent subject regularly leads to passivization. Thus, passivization applies when the subject is indefinite, nonspecific, or not important in the discourse. Similarly, in some languages passive forms are used to indicate nonvolitionality on the part of the subject (see Masica 1991 on Sinhala and Dhivehi). In ergative languages, on the other hand, a nonvolitional subject may lead to a differential subject-marking pattern, as observed above. Thus, features that trigger differential subject marking in ergative languages may cause the use of a passive construction in nominative-accusative languages. Again, this can be straightforwardly explained by *PAIP*. Marking a change in meaning on the (nominative) subject of a transitive clause would violate *PAIP*, which states that the unmarked argument should not be marked. Using the passive construction causes the object to be promoted to the function of subject and hence to become the unmarked argument (in the nominative case), thus satisfying *PAIP*.

As is expected if PAIP is a violable constraint, it may be violated as well in certain circumstances. A case where PAIP is violated comes from Warlpiri (Hale 1973).

- (45) Njuntulu-lu npa-tju pantunu ŋatju.
 2SG-ERG 2SG-1SG speared 1SG.ABS
 ‘You speared me.’
- (46) Njuntulu-lu npa-tju-la pantunu ŋatju-ku.
 2SG-ERG 2SG-1SG-LA speared 1SG-DAT
 ‘You speared at me.’ / ‘You tried to spear me.’

In (45), the object is in the unmarked case, the absolutive, while the subject is in the ergative case. In (46), however, we assume that the object ‘me’ is weak, as the action is attempted but not necessarily accomplished, and this weakness is marked by dative case on the object. In other ergative languages, as shown in (44), a weak object may result in the use of an antipassive construction. In Warlpiri, however, the construction in (46) is not an antipassive construction, because the subject retains ergative case and there is no antipassive morphology on the predicate either. So, both arguments of the transitive clause are actually case-marked in (46) and this means that PAIP is indeed violated. We can argue that in examples such as (46) IDENTIFY and PAIP again conflict, but IDENTIFY outranks PAIP.

To sum up, we have presented harmonic cases where IDENTIFY and PAIP reinforce each other—that is, both constraints can be satisfied in case of differential object marking in nominative-accusative languages and differential subject marking in ergative languages. When the two constraints are in conflict, a voice alternation is a common way to resolve it. As predicted, passivization applies when a subject alternation must be encoded in a nominative-accusative language, while antipassivization applies when an object alternation must be encoded in an ergative language (Malchukov 2006). This is also observed by Legendre, Raymond, and Smolensky (1993), who argue that passives occur when the input is aP (with a weak subject), while antipassives occur when the input is Ap (with a weak object). However, Legendre, Raymond, and Smolensky do not account for the fact that passives are found more often in nominative-accusative languages, while antipassives are found more often in ergative languages. In our approach, this is straightforwardly explained by the interaction between two conflicting constraints, as an attempt to satisfy PAIP.

There are exceptions to this general picture, however, as already discussed by Malchukov (2006). For example, sometimes ergative languages seem to disfavor differential subject marking because the transitive subject and the verb agree. In Inuit, where the verb agrees with both the subject and the object, it can be argued that not only the (absolutive) object but also the ergative subject have properties that are attributed to the ‘‘primary’’ (unmarked) argument referred to by PAIP. Malchukov argues that for this reason, Inuit disfavors differential subject marking and turns to the use of a passive construction instead, although passive formation is otherwise typical of nominative-accusative languages. Similarly, one can argue that when the verb agrees with the object in a nominative-accusative language, the object has properties associated with the ‘‘primary’’ unmarked argument, and therefore this language may resist differential object marking and turn to the use of an antipassive instead, a voice that is otherwise almost exclusively found

with ergative languages. The latter view is consistent with Nichols's (1992:158) observation that not only ergative languages but also "those accusative languages in which there is agreement with the O [object]" have antipassives. Another complication is presented by languages that show multiple agreement (with both the subject and the object). For more discussion of these issues, see Malchukov 2006.

Also, related to the previous discussion, we have shown that in Warlpiri, PAIP is clearly violated, as it is outranked by IDENTIFY. Note that Warlpiri is known as a "surface ergative" language, which displays hardly any ergative features apart from case marking (e.g., the agreement system functions on a nominative-accusative basis). Thus, for this language the status of the object as the "primary," unmarked argument is questionable. Basically, each of the two arguments is unmarked in its own way, the subject of the transitive sentence being unmarked in terms of agreement, and the object being unmarked in terms of case. Hindi is another example of a language where PAIP is clearly ranked lower than IDENTIFY. Hindi shows both differential subject marking (based on a split between perfective and imperfective tenses) and differential object marking (based on the features animacy and specificity of the object). The two case-marking alternations are for the most part independent of each other in Hindi, which means that both arguments can be "unmarked," but which also means that both arguments can be case-marked, as illustrated by the ergative-accusative pattern in (47).

- (47) Us-ne ek laD.ke-ko dekhaa.
 he-ERG one boy-ACC saw
 'He saw the boy.'

Thus, PAIP is ranked low in Hindi (see de Hoop and Narasimhan 2005), and this might be related to the fact that it is hard to identify one argument as the "primary" or unmarked argument. In Kashmiri, which also has differential subject and object marking, animate objects are *not* marked in perfective contexts, that is, when ergative case is assigned to the subject (Klaiman 1987). In (48), with an imperfective verb, the first person pronominal object receives accusative case; in (49), with a perfective verb, it remains caseless (Wali and Koul 1997).

- (48) Su chu me parina:va:n.
 he is 1SG.ACC teaching
 'He is teaching me.'
- (49) Nana-n roTus b1.
 Nana-ERG caught 1SG
 'Nana caught me.'

This means that PAIP is ranked higher in Kashmiri than in Hindi, and so in Kashmiri one argument must remain unmarked (if not the subject, then the object).

A final puzzle arises in certain cases where an A-feature is marked on the object, or where a P-feature is marked on the subject, to satisfy PAIP. These cases are discussed more extensively in Malchukov 2006. One example is the following Russian construction, where nonvolitionality of the subject is marked by instrumental case on the object.

- (50) On krutil rul'.
 he rotated wheel-ACC
 'He rotated the wheel (consciously).'
- (51) On krutil rul'-om.
 he rotated wheel-INTR
 'He rotated the wheel unconsciously.'

In this example, it seems that IDENTIFY is violated in order to satisfy PAIP. IDENTIFY would require marking (non)volitionality on the subject. But in Russian, which is a nominative-accusative language, nonvolitionality of the subject is encoded on the object in order to leave the unmarked nominative subject unmarked. Therefore, one could argue that PAIP outranks IDENTIFY. In fact, however, IDENTIFY is not really violated here. The alternation between a weak and a strong subject *is* identified by case after all, albeit a case alternation on the object. Malchukov (2006) presents more examples of the same sort and argues that in these cases, IDENTIFY is satisfied after all, even by the marking of the "wrong" argument (in this case, the object is marked to express a feature of the subject). We assume that in these cases PAIP outranks a specific constraint such as IDENTIFY (A/ERG), which universally outranks a more general version of IDENTIFY (Woolford 2001). While satisfaction of PAIP in the Russian construction necessarily implies violation of the specific constraint IDENTIFY (A/ERG), the more general version of IDENTIFY can still be satisfied by case-marking the relevant feature (volitionality of the subject) on the wrong argument (the object).

To sum up, we have shown that the attested case and voice correlations in different types of languages can generally be analyzed as resulting from the interplay between two violable constraints, IDENTIFY and PAIP.

5 Conclusions

We have distinguished two main strategies of case marking, DISTINGUISHABILITY and IDENTIFY, and argued that they both play a role in the languages of the world. DISTINGUISHABILITY requires case marking to *disambiguate*, that is, to distinguish between the arguments of a transitive clause. IDENTIFY is a strategy that requires case marking to *identify* specific semantic-pragmatic information. In this article, we have investigated the two strategies of case marking and analyzed them as violable constraints. We have shown that they converge in the domain of differential object marking, whereas they diverge in the domain of differential subject marking. We have analyzed these patterns within a bidirectional OT approach, which we believe can handle more types of attested case alternations than a unidirectional OT syntactic account (see de Hoop and Malchukov 2007). We have also argued that while asymmetrical differential case marking can sometimes be explained by DISTINGUISHABILITY, symmetrical differential case marking must always be due to IDENTIFY. The variety of patterns found across languages is predicted on the basis of these two case-marking constraints in relation to a principle of ECONOMY. Finally, following Malchukov (2006), we have argued that it is not a coincidence that antipassive constructions and differential subject marking are found mostly in ergative languages, while passive formation and differential object marking are found mostly in nominative-accusative languages. This is due to the interaction

of IDENTIFY and an economy constraint, PAIP, that penalizes marking of the ‘‘unmarked’’ argument (*the ‘‘unmarked’’ argument* refers to the nominative argument in nominative-accusative languages and the absolutive argument in ergative languages). In general, we hope to have shown that it is worth taking a surface phenomenon such as the presence or absence of morphological case seriously, as it has deep repercussions in grammar.

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